

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 9-15 remain pending. No new matter has been added.

In the outstanding Office Action, Claims 9 and 12 were rejected under 35 U.S.C. § 103(a) as unpatentable over Narutaki, et al. (U.S. Pat. No. 6,624,860, hereinafter “Narutaki”) in view of Nakamura, et al. (U.S. Pat. No. 6,005,646, hereinafter “Nakamura”) and further in view of Hirai, et al. (U.S. Pat. No. 6,122,021, hereinafter “Hirai”); Claims 10 and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Narutaki in view of Nakamura and Hirai and further in view of Kawana, et al. (U.S. Pat. Pub. No. 2004/0218115, hereinafter “Kawana”); Claims 11 and 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over Narutaki in view of Nakamura and Hirai and further in view of Miyachi, et al. (U.S. Pat. No. 6,493,053, hereinafter “Miyachi”); and Claim 15 was rejected under 35 U.S.C. § 103(a) as unpatentable over Narutaki in view of Nakamura and Hirai and further in view of Miyachi.

Regarding the rejection of Claims 9 and 12 under 35 U.S.C. §103(a) as unpatentable over Narutaki in view of Nakamura and Hirai, Applicants respectfully traverse the rejection.

By way of review, independent Claim 9 recites, in part, a liquid crystal display cell, including:

a voltage supplying source supplying the voltage applied to the blue pixel electrode in black display being different from the voltages applied to the red and green pixel electrodes in black display, and the voltage of the blue pixel electrode in black display being set to a voltage making the v' value of the u' v' chromaticity diagram become the maximum.

As described by way of non-limiting example on page 4 of Applicants’ specification, if the same black display voltage is applied to a red, green and blue pixel, a blueness occurs in a display screen due to the effect of wavelength dispersion. That is, since blue light of short wavelength is greatly affected by the wavelength dispersion, a display image is liable to

be tinged with blue in the black display. Accordingly, supplying the voltage applied to a blue pixel electrode in a black display with a different voltage than that which is applied to a red and a green pixel electrodes in black display, permits the voltage being applied to the blue pixel electrode at the time of a black display to be controlled independently. Thus, an advantage of the claimed invention is that by applying a voltage setting in accordance with chromaticity, color balance can be regulated by compensating the light leaking from the blue filter with other colors.

The outstanding Office Action cited Fig. 24 and col. 30, line 15 to col. 31, line 23, of Narutaki as corresponding to the claimed “the voltage of the blue pixel electrode in black display being set to a voltage making the v' value of the u' v' chromaticity diagram become the maximum.”

Narutaki is directed to a semi-transmissive type LCD and to providing a color filter structure with a bright and high chromaticity property to both a reflection mode and a transmission mode. However, in contrast to the claimed invention, Narutaki does not disclose or suggest anything related to optically compensated birefringence (OCB) technology.

More specifically, Fig. 24 of Narutaki is a plot (chromaticity diagram) of values x and y of respective color filter layers of a transmission/reflection-type liquid crystal display device, a transmission-type liquid crystal display device and a reflection-type liquid crystal display device. That is, Fig. 24 of Narutaki illustrates nothing but the x and y value indicating the chromaticity of each color.

Further, col. 30, line 15 to col. 31, line 23, of Narutaki describes that x and y are variables representing hue and color saturation, and that X, Y and Z are stimulus values for a virtual color. Indeed, this cited portion merely describes the relationship between x, y values and the stimulus values.

However, Applicants respectfully submit that Narutaki does not disclose or suggest “the voltage of the blue pixel electrode in black display being set to a voltage making the v' value of the u' v' chromaticity diagram become the maximum,” as recited in independent Claim 9.

Should the present rejection be maintained, Applicants respectfully request that the next Office Communication provide a specifically explanation of what is considered the voltage of the blue pixel electrode in black display ***being set to a voltage such that the v' value of the u' v' chromaticity diagram become a maximum value*** in Narutaki. Indeed, 37 C.F.R. § 104 (c)(2) indicates that, when a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable.

Further, the outstanding Office Action cited col. 37, lines 53-63, and col. 40, lines 14-25, of Hirai as corresponding to the claimed “a voltage supplying source supplying the voltage applied to the blue pixel electrode in black display being different from the voltages applied to the red and green pixel electrodes in black display.”

Hirai is directed to reducing image-sticking due to hysteresis in the voltage-transmittance characteristics (e.g., when the transmittance during the increase of voltage is different from that during the decrease of voltage). Further, according to Hirai, one voltage is applied across a liquid crystal display element. Indeed, as described in col. 31, lines 57-64 of Hirai:

“A liquid crystal display device of the present invention should be driven such that, when a voltage is to be applied for driving thereof, a voltage lower than the maximum root means square of applied voltage provided by the expression (3B) or (3C) given hereinabove, normally such maximum root mean square of applied voltage, may be applied to the liquid crystal polymer composite between electrodes of a pixel.”

Hence, Hirai does not disclose or suggest applying a different voltage to a blue pixel as that which is applied to red and green pixel electrodes.

Moreover, according to col. 37, lines 53-63, of Hirai, transmittance was observed to be highest with red and lowest with blue *at the same applied voltage* when no electric field was applied to the three liquid crystal display elements. Thus, the portions of Hirai cited in the Office Action (col. 37, lines 53-63, and col. 40, lines 14-25) describes observing voltage-transmittance characteristics when varying an electric field applied to three liquid crystal display elements. However, Hirai does not disclose or suggest applying a different voltage to a blue pixel than the voltage that is applied to a red and green pixel electrode.

Hence, Hirai does not disclose or suggest “a voltage supplying source supplying the voltage applied to the blue pixel electrode in black display being different from the voltages applied to the red and green pixel electrodes in black display,” as recited in Claim 9.

Accordingly, it is respectfully submitted that Narutaki, Nakamura, and Hirai do not anticipate or render obvious the features of Claim 9. Therefore, independent Claim 9 (and Claims 10-11 dependent therefrom) is believed to patentably define over the applied references.

Independent Claim 12 recites, in part, a liquid crystal display cell, including:

a voltage supplying source supplying the voltage applied to the blue pixel electrode in black display being different from the voltages applied to the red and green pixel electrodes in black display, and the maximum voltage of the blue pixel electrode being set to a voltage making the Z value of the XYZ stimulus value become the minimum.

While Narutaki uses the term “XYZ stimulus value,” as noted above, Fig. 24 of Narutaki illustrates nothing but the x and y value indicating the chromaticity of each color. Further, col. 30, line 15 to col. 31, line 23 (cited in the Office Action), of Narutaki merely describes the relationship between x, y values and the stimulus values. Indeed, Narutaki does not disclose or suggest “the maximum voltage of the blue pixel electrode being set to a

voltage making the Z value of the XYZ stimulus value become the minimum," as recited in Claim 12.

Therefore, for substantially the same reasons as discussed with regard to Claim 9, it is respectfully submitted that independent Claim 12 (and Claims 13-14 dependent therefrom) also patentably defines over Narutaki, Nakamura, and Hirai.

Should the present rejection be maintained, Applicants respectfully request that the next Office Communication provide a specifically explanation of what is considered the maximum voltage of the blue pixel electrode *being set to a voltage making the Z value of the XYZ stimulus value become the minimum* in Narutaki. Indeed, 37 C.F.R. § 104 (c)(2) indicates that, when a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable.

Independent Claim 15, while differing in scope from Claim 1, patentably define over Narutaki, Nakamura, Hirai, and Miyachi for substantially the same reasons as Claims 9 and 12. Accordingly, it is respectfully submitted that Narutaki, Nakamura, Hirai, and Miyachi do not anticipate or render obvious the features of independent Claim 15. Therefore, independent Claim 15 is believed to patentably define over the applied references.

With regard to the rejection of Claims 11 and 14 as unpatentable over Narutaki in view of Nakamura and Hirai, and further in view of Miyachi, it is noted that Claims 11 and 14 are dependent from Claim 9 and 12, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Miyachi does not cure any of the above-noted deficiencies of Narutaki, Nakamura, and Hirai. Accordingly, it is respectfully submitted that Claims 11 and 14 are patentable over Narutaki, Nakamura, Hirai, and Miyachi.

With regard to the rejection of Claims 10 and 13 as unpatentable over Narutaki in view of Nakamura and Hirai, and further in view of Kawana, it is noted that Claims 10 and 13 are dependent from Claim 9 and 12, and thus are believed to be patentable for at least the reasons discussed above. Further, it is respectfully submitted that Kawana does not cure any of the above-noted deficiencies of Narutaki, Nakamura, and Hirai. Accordingly, it is respectfully submitted that Claims 10 and 13 are patentable over Narutaki, Nakamura, Hirai, and Kawana.

Consequently, in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)

Surinder Sachar
Registration No. 34,425